CLAIMS

What is claimed is:

1. A system for remote vehicle diagnostics, telematics, monitoring, configuring, and reprogramming, comprising:

an on-board unit disposed on at least one vehicle to send and receive data corresponding to at least one vehicle operating characteristic;

an application-service-provider infrastructure;

an application suite located on the application-service-provider infrastructure, comprising at least one modular application, each of the at least one modular applications having an associated function that processes said data obtained via the on-board unit; and

an interface for selecting from the application suite at least one of the modular applications that will use the associated function to diagnose, monitor, configure, reprogram, and/or obtain telematic information from the at least one vehicle.

2. The system of claim 1, wherein the on-board unit comprises:

at least one on-board unit interface to support communication between the on-board unit and at least one device outside the on-board unit;

a processor that manages the data sent and received by the on-board unit via said at least one interface; and

a memory coupled to the processor.

3. The system of claim 2, wherein said at least one on-board unit interface comprises at least one interface selected from the group consisting of:

a wireless interface that supports communication with a wireless communication system;

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a vehicle interface that supports communication with at least one vehicle component via a vehicle data bus;

a user interface that supports communication with a user;

a serial interface that supports communication with at least one of a driver interface and an on-vehicle device; and

a global positioning interface that supports communication with a global positioning system (GPS) device.

4. The system of claim 3, wherein the vehicle interface comprises at least one interface selected from the group consisting of:

a data parser/requester module that handles non-application-specific interfacing between the processor and the vehicle data bus; and

an application specific module coupled to the data parser/requester module that handles application-specific interfacing between the processor and the vehicle data bus.

5. The system of claim 1, wherein the modular applications comprise at least one application selected from the group consisting of third-party applications, system-supplied applications, and core services.

6. The system of claim 1, wherein the interface comprises at least one interface selected from the group consisting of:

a user interface that supports interaction with a human user; and

a machine-to-machine interface.

7. The system of claim 6, wherein the user interface is a graphical user interface.

8. The system of claim 1, further comprising a server linking the on-board unit to the interface via the modular applications.

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9. The system of claim 8, wherein the server comprises at least one server selected from the group consisting of:

a web/application server containing logic defining the modular applications;

a vehicle server that acts as a translator between the modular applications and the on-board unit;

a communications server to support communication via a wireless network; and

a database server containing at least one relational data table retaining information associated with the vehicle.

10. The system of claim 1, wherein at least one of the plurality of modular applications correlates data between at least two vehicle controllers on the same vehicle.

11. The system of claim 1, wherein at least one of the plurality of modular applications establishes a setting for a plurality of vehicles with one command sent via the interface.

12. The system of claim 1, wherein the at least one modular application comprises at least one application selected from the group consisting of a remote diagnostics application, a fuel economy application, a trip reporting application, an automatic vehicle location application, a leased vehicle management application, an engine management application, an alert application, a vehicle configuration application, a warranty management application, a fuel tax reporting application, a state line crossing application, an asset tracking/ utilization application, a driver performance application, an on-line vehicle documentation application, a mapping application, an HDS engine controller application, a Meritor transmission application, a WABCO ABS application, and a group reprogramming application.

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13. A method for remote vehicle diagnostics, telematics, monitoring, configuring, and reprogramming, comprising:

obtaining data from an on-board unit disposed on at least one vehicle corresponding to at least one vehicle operating characteristic;

providing an application-service-provider infrastructure;

providing an application suite located on the application-service-provider infrastructure, comprising at least one modular application, wherein each of the at least one modular applications has an associated function that processes said data obtained via the on-board unit; and

selecting, via an interface, at least one of the modular applications from the application suite to process, using the associated function, the data obtained from the on-board unit to diagnose, monitor, configure, reprogram, and/or obtain telematic information from the at least one vehicle.

14. The method of claim 13, wherein the on-board unit comprises:

at least one on-board unit interface to support communication between the on-board unit and at least one device outside the on-board unit;

a processor that manages the data sent and received by the on-board unit via said at least one interface; and

a memory coupled to the processor.

15. The method of claim 14, wherein said at least one on-board unit interface comprises at least one interface selected from the group consisting of:

a wireless interface that supports communication with a wireless communication system;

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a vehicle interface that supports communication with at least one vehicle component via a vehicle data bus;

a user interface that supports communication with a user;

a serial interface that supports communication with at least one of a driver interface and an on-vehicle device; and

a global positioning interface that supports communication with a global positioning system (GPS) device.

16. The method of claim 15, wherein the vehicle interface comprises at least one interface selected from the group consisting of:

a data parser/requester module that handles non-application-specific interfacing between the processor and the vehicle data bus; and

an application specific module coupled to the data parser/requester module that handles application-specific interfacing between the processor and the vehicle data bus.

17. The method of claim 13, wherein the modular applications comprise at least one application selected from the group consisting of third-party applications, system-supplied applications, and core services.

18. The method of claim 13, wherein the interface comprises at least one interface selected from the group consisting of:

a user interface that supports interaction with a human user; and

a machine-to-machine interface.

19. The method of claim 18, wherein the user interface is a graphical user interface.

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20. The method of claim 13, further comprising a server linking the onboard unit to the interface via the modular applications.

21. The method of claim 20, wherein the server comprises at least one server selected from the group consisting of:

a web/application server containing logic defining the modular applications;

a vehicle server that acts as a translator between the modular applications and the on-board unit;

a communications server to support communication via a wireless network; and

a database server containing at least one relational data table retaining information associated with the vehicle.

22. The method of claim 13, wherein at least one of the plurality of modular applications correlates data between at least two vehicle controllers on the same vehicle.

23. The method of claim 13, wherein at least one of the plurality of modular applications establishes a setting for a plurality of vehicles with one command sent via the interface.

24. The method of claim 13, wherein selecting at least one of the modular applications comprises selecting at least one modular application from the group consisting of a remote diagnostics application, a fuel economy application, a trip reporting application, an automatic vehicle location application, a leased vehicle management application, an engine management application, an alert application, a vehicle configuration application, a warranty management application, a fuel tax reporting application, a state line crossing application, an asset tracking/ utilization application, a driver performance application, an on-line vehicle documentation application, a mapping application, an HDS engine controller application, a

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Meritor transmission application, a WABCO ABS application, and a group reprogramming application.

25. The method of claim 13, further comprising:

sending a first request message to each of the at least one vehicle to cause the on-board units disposed thereon to persist parameter values at ignition off;

sending a second request message to said on-board units at a scheduled time;

gathering parameter data in said on-board units in response to said second request message until either all vehicles in the group respond or a timeout period elapses;

posting said parameter data online if requested by a user; and

sending said parameter data to a report if requested by a user.

26. The method of claim 13, further comprising:

initiating a report for a selected group of vehicles;

sending a request message to all vehicles in the group;

gathering parameter data in said on-board units in response to said request message until either all vehicles in the group respond or a timeout period elapses;

constructing a report reflecting said parameter data; and

sending the report to an e-mail address.

27. The method of claim 13, further comprising:

monitoring a vehicle bus for faults;

detecting a fault;

determining whether the fault is stored in a fault history;

sending a fault-alert message from the on-board unit to the application-service-provider infrastructure if the fault is not stored in the fault history; and

persisting the fault in the fault history.

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28. A computer program product comprising a computer usable medium having control logic stored therein for causing a computer to provide remote vehicle diagnostics, telematics, monitoring, configuring, and reprogramming, comprising:

first computer readable program code means for causing an on-board unit disposed on at least one vehicle to send and receive data corresponding to at least one vehicle operating characteristic;

second computer readable program code means for providing an application suite located on an application-service-provider infrastructure, comprising at least one modular application, each of the at least one modular applications having an associated function that processes said data obtained via the on-board unit; and

third computer readable program code means for providing an interface for selecting from the application suite at least one of the modular applications that will use the associated function to diagnose, monitor, configure, reprogram, and/or obtain telematic information from the at least one vehicle.

29. The computer program product of claim 28, wherein the on-board unit includes:

at least one on-board unit interface to support communication between the on-board unit and at least one device outside the on-board unit;

a processor that manages the data sent and received by the on-board unit via said at least one interface; and

a memory coupled to the processor.

30. The computer program product of claim 29, wherein said at least one on-board unit interface comprises at least one interface selected from the group consisting of:

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a wireless interface that supports communication with a wireless communication system;

a vehicle interface that supports communication with at least one vehicle component via a vehicle data bus;

a user interface that supports communication with a user;

a serial interface that supports communication with at least one of a driver interface and an on-vehicle device; and

a global positioning interface that supports communication with a global positioning system (GPS) device.

31. The computer program product of claim 30, wherein the vehicle interface comprises at least one interface selected from the group consisting of:

a data parser/requester module that handles non-application-specific interfacing between the processor and the vehicle data bus; and

an application specific module coupled to the data parser/requester module that handles application-specific interfacing between the processor and the vehicle data bus.

32. The computer program product of claim 28, wherein the modular applications comprise at least one application selected from the group consisting of third-party applications, system-supplied applications, and core services.

33. The computer program product of claim 28, wherein the interface comprises at least one interface selected from the group consisting of:

a user interface that supports interaction with a human user; and

a machine-to-machine interface.

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34. The computer program product of claim 33, wherein the user interface is a graphical user interface.

35. The computer program product of claim 28, further comprising a server linking the on-board unit to the interface via the modular applications.

36. The computer program product of claim 35, wherein the server comprises at least one server selected of the group consisting of:

a web/application server containing logic defining the modular applications;

a vehicle server that acts as a translator between the modular applications and the on-board unit;

a communications server to support communication via a wireless network; and

a database server containing at least one relational data table retaining information associated with the vehicle.

37. The computer program product of claim 28, wherein at least one of the plurality of modular applications correlates data between at least two vehicle controllers on the same vehicle.

38. The computer program product of claim 28, wherein at least one of the plurality of modular applications establishes a setting for a plurality of vehicles with one command sent via the interface.

39. The computer program product of claim 28, wherein the at least one modular application comprises at least one application selected from the group consisting of a remote diagnostics application, a fuel economy application, a trip reporting application, an automatic vehicle location application, a leased vehicle management application, an engine management application, an alert application, a vehicle configuration application, a warranty

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management application, a fuel tax reporting application, a state line crossing application, an asset tracking/ utilization application, a driver performance application, an on-line vehicle documentation application, a mapping application, an HDS engine controller application, a Meritor transmission application, a WABCO ABS application, and a group reprogramming application.

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